Claims:

- 1. A recombinant calf-Chymosin protein as set forth in SEQ ID No. 1.
- 2. A recombinant calf-Chymosin gene as set forth in SEQ ID No. 2.
- 3. The recombinant calf-chymosin gene as claimed in claim 2 encoding the protein comprising amino acid sequence of SEQ ID NO.1.
- 4. An E.coli comprising the recombinant chymosin gene of SEQ ID No. 2.
- 5. The E. coli as claimed in claim 4 is BL21 cell of E.coli.
- 6. An expression vector pET21b comprising recombinant calf-chymosin gene as set forth in SEQ ID No. 2.
- 7. A method for producing recombinant calf-chymosin protein as set forth in SEQ ID No. 1 which comprises steps of isolating calf-chymosin gene, cloning the same in bacterial expression vector pET21b, transforming said cloned vector into cells of *E.coli*, fermenting said *E.coli* to produce pro-chymosin, converting said pro-chymosin to chymosin and subsequently recovering the recombinant calf-chymosin.
- 8. The method as claimed in claim 7, wherein the calf-chymosin gene is obtained by isolating RNA from fourth stomach of calf tissue, synthesising a first strand of cDNA therefrom by treating the same with a reverse primer of SEQ ID NO.3 and then with a forward primer of SEQ ID NO.4.
- 9. The method as claimed in claim 8, wherein the cDNA is ligated at smal site of pBSSK+ plasmid and then transformed into TOP10 cells of *E-coli*.
- 10. The method as claimed in claim 9, wherein said recombinant clones were identified and treated with a forward primer of SEQ ID NO.5 and reverse primer of SEQ ID NO.6 containing Nde I and Hind III sites to obtain an amplified fragment.

- 11. The method as claimed in claim 10, wherein the amplified fragment is transformed into cells of *E.coli* for expressing chymosin gene.
- 12. The method as claimed in claim 11, wherein *E.coli* cells containing recombinant calf -chymosin gene is fermented, the suspended cells produced on completion of fermentation are lysed, chilled and pH adjusted to about 8 before incubation at room temperature and the separation of supernatent containing prochymosin.
- 13. The method as claimed in claim 12, wherein the pH of supernatent is adjusted to about 2 for activation, further incubated for about 6 hrs and subjected to filtration to obtain filtrate.
- 14. The method as claimed in claim 13, wherein the filtrate is subjected to sodium chloride precipitation, then the precipitate is dissolved followed by the addition of sodium benzoate as preservative.